## **Preface**

Traditionally, studies in phonetics have involved investigation of the articulatory positions and maneuvers utilized in the production of various speech sounds. The development of refined techniques for the acoustic analysis of speech in the 1940's, primarily at the Bell Telephone Laboratories, led to a shift of emphasis from articulatory phonetics to problems of specifying the acoustic attributes of speech sounds.

In the last few years, however, renewed interest has been shown in studies of speech production. This change has been due in part to the fact that a clearer understanding of the relations between articulatory maneuvers and the resulting acoustic signal has emerged, largely as a result of the work of Gunnar Fant of the Royal Institute of Technology in Stockholm. Furthermore, improved instrumentation and techniques have made it possible to examine in a quantitative way the articulatory motions and configurations, the mechanics and aerodynamics of the respiratory system, and the activity of the muscles that control the structures utilized in speech production.

Additional motivation for study of the articulatory processes involved in speech, particularly when such a study is combined with investigations into the acoustic and perceptual correlates of speech events, stems from the research of linguists. Many linguists express the conviction that the code underlying the phonetic realization of speech, and the constraints on allowable patterns of this code, are based on the properties of the

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biological system that is used for auditory communication. Study of this system, therefore, will provide insight into the nature of both the elements of the code and the rules governing combinations of these elements.

It has only been in the last decade that cineradiography has been used as one of the techniques for studying speech production. Cineradiographic procedures have been particularly useful in examination of the kinds of coarticulation phenomena that occur in speech. Dr. Perkells' monograph has a twofold objective. First, it presents a body of more or less raw data which the reader can use to make his own interpretations and to test his models. Secondly, the monograph gives some analysis and interpretation of the data in terms of underlying linguistic categories, and Dr. Perkell makes some speculations on the nature of a model of speech production, based on his own findings and on the work of others. This work, therefore, represents an important step forward in the continuing search for deeper and better understanding of the nature of human speech.

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